

WHAT IS CLAIMED

1. A solid state switch architecture comprising:
 - a plurality of control/monitor ports;
 - a plurality of input/output ports;
 - a first solid state switching device having a first input/output node coupled to a first input/output port of said output plurality of input/output ports, a second input/output node coupled to a second input/output port of said plurality of input/output ports, and a control node;
 - a second solid state switching device having a first input/output node coupled to a third input/output port of said plurality of input/output ports, a second input/output node coupled to said second input/output port, and a control node coupled in common with the control node of said first solid state switching device; and
 - a solid state switching device driver circuit having a first input node coupled to a first control port of said plurality of monitor/control ports, a second input node coupled to a second control port of said plurality of monitor/control ports, and an output node coupled to the control nodes of said first and second solid state switching devices, said driver circuit being operative, in response to the application of a voltage differential to said first and second control ports, to turn on each of said first and second solid state switching devices, and thereby provide a first current flow path between said first and second input/output ports, a second current flow

path between said second and third input/output ports, and a third current flow path between said first and third input/output ports.

2. The solid state switch architecture according to claim 1, further including an optical indicator device coupled between a third control port of said plurality of control/monitor ports and one of said first and second control ports, and being operative to provide an indication of the application of a voltage differential to said first and second control ports in response to said third control port being coupled to one of said first and second control ports.

3. The solid state switch architecture according to claim 2, further comprising a first resistor coupled between said second input/output port and a fourth input/output port of said plurality of input/output ports, and wherein connections are provided between opposite ends of said first resistor and first and second monitor ports of said plurality of control/monitor ports.

4. The solid state switch architecture according to claim 3, further comprising a second resistor coupled between fifth and sixth input/output ports of said plurality of input/output ports, and wherein connections are provided between opposite ends of said second resistor

and third and fourth monitor ports of said plurality of control/monitor ports.

5. The solid state switch architecture according to claim 4, further comprising a third resistor coupled between said seventh and eighth input/output ports of said plurality of input/output ports, and wherein a connection is provided between said seventh input/output port and said third input/output port.

6. A method of controllably applying a voltage to a load comprising the steps of:

(a) providing a solid state switch architecture having:

a plurality of control/monitor ports,

a plurality of input/output ports,

a first solid state switching device having a first input/output node coupled to a first input/output port of said output plurality of input/output ports, a second input/output node coupled to a second input/output port of said plurality of input/output ports, and a control node, and

a second solid state switching device having a first input/output node coupled to a third input/output port of said plurality of input/output ports, a second input/output node coupled to said second input/output port,

and a control node coupled in common with the control node of said first solid state switching device;

(b) coupling a load and a power source therefor to selected ones of said input/output ports; and

(c) applying a voltage differential to first and second control ports of said plurality of control/monitor ports, so as to turn on each of said first and second solid state switching devices, and thereby provide a current flow path through said first and second solid state switching devices, so as to place said load in circuit with said power source therefor by way of at least one of said first and second solid state switching devices and said selected ones of said input/output ports.

7. The method according to claim 6, wherein said power source comprises a DC power source.

8. The method according to claim 6, wherein said power source comprises an AC power source.

9. The method according to claim 6, further including the steps of:

(d) coupling an optical indicator device between said first and second control ports of said plurality of control/monitor ports, said optical indicator being operative to provide an indication of the application of a

voltage differential to said first and second control ports.

10. The method according to claim 6, wherein a first resistor is coupled between said second input/output port and a fourth input/output port of said plurality of input/output ports, said load and said power source therefor are coupled in a circuit path including said fourth input/output port, and further including the step (d) of monitoring a voltage across said first resistor to derive a voltage representative of current through said load.

11. The method according to claim 10, wherein a second resistor is coupled between fifth and sixth input/output ports of said plurality of input/output ports, said load and said power source therefor are coupled in a circuit path including said fifth and sixth input/output ports, and further including the step (d) of monitoring a voltage across said second resistor to derive a voltage representative of current through said load.

12. The method according to claim 11, wherein a third resistor is coupled between said seventh and eighth input/output ports of said plurality of input/output ports, a connection is provided between said seventh input/output port and said third input/output port, and an indicator

device is coupled between said seventh and eighth input/output ports.

13. A solid state switch architecture for controllably placing a load in circuit with a power source therefor comprising:

a plurality of input/output ports, selected ones of which are adapted to be coupled to a circuit path containing said load and said power source;

a plurality of control/monitor ports;

a first solid state switching device having a first input/output node coupled to a first input/output port of said plurality of input/output ports, a second input/output node coupled to a second input/output port of said plurality of input/output ports, and a control node;

a second solid state switching device having a first input/output node coupled to a third input/output port of said plurality of input/output ports, a second input/output node coupled to said second input/output port, and a control node coupled in common with the control node of said first solid state switching device; and

a solid state switching device driver circuit having a first input node coupled to a first control port of said plurality of monitor/control ports, a second input node coupled to a second control port of said plurality of monitor/control ports, and an output node coupled to the control nodes of said first and second solid state

switching devices, said driver circuit being operative, in response to the application of a voltage differential to said first and second control ports, to turn on each of said first and second solid state switching devices, and thereby provide a current flow path through at least one of said first and second solid state switching devices and said circuit path containing said load and said power source.

14. The solid state switch architecture according to claim 13, wherein said selected ones of said input/output nodes are adapted to be coupled to said circuit path containing said load and said power source so as to effectively place said first and second solid state switching devices in parallel and thereby minimizing insertion loss therethrough.

15. The solid state switch architecture according to claim 13, wherein said selected ones of said input/output nodes are adapted to be coupled to said circuit path containing said load and said power source, so as to effectively couple only one of said first and second solid state switching devices with said circuit path, thereby providing a nominal insertion loss through said only one solid state switching device.

16. The solid state switch architecture according to claim 13, wherein said selected ones of said input/output nodes are adapted to be coupled to said circuit path containing said load and said power source, so as to effectively couple both of said first and second solid state switching devices in series with said circuit path, thereby providing a nominal insertion loss through both of said solid state switching devices.

17. The solid state switch architecture according to claim 16, wherein said selected ones of said input/output nodes are adapted to be coupled to said circuit path containing said load and said power source, so as to effectively couple said first and second solid state switching devices in series with said circuit path, such that body diodes thereof are in opposite electrical directions.

18. The solid state switch architecture according to claim 13, further comprising a first resistor coupled between said second input/output port and a fourth input/output port of said plurality of input/output ports, and wherein connections are provided between opposite ends of said first resistor and first and second monitor ports of said plurality of control/monitor ports.

19. The solid state switch architecture according to claim 18, further comprising a second resistor coupled between fifth and sixth input/output ports of said plurality of input/output ports, and wherein connections are provided between opposite ends of said second resistor and third and fourth monitor ports of said plurality of control/monitor ports.

20. The solid state switch architecture according to claim 19, further comprising a third resistor coupled between said seventh and eighth input/output ports of said plurality of input/output ports, and wherein a connection is provided between said seventh input/output port and said third input/output port.